

# Hikikomori: a hidden mental health need following the COVID-19 pandemic

As lockdown measures ease in several countries, returning to a life with dramatically altered economic and social circumstances will pose significant mental health challenges<sup>1</sup>. Early population prevalence data from China suggest that the COVID-19 pandemic may induce a fivefold increase in problems such as anxiety and depression<sup>2</sup>. However, these estimates will miss people who remain socially withdrawn but undetected by services because a defining feature of their condition is the desire to become invisible from society. We already know something of the phenomenology and social costs of this problem through studies of the syndrome known as hikikomori<sup>3,4</sup>.

Hikikomori is a Japanese term, comprised of the verb *hiki*, “to withdraw”, and *komori*, which means “to be inside”. It was first introduced in the 1990s to describe young people who displayed extreme and long-term social withdrawal and an eschewing of social conventions around obtaining an education and pursuing a career<sup>3</sup>. It is currently viewed as a sociocultural mental health phenomenon, rather than a typical mental illness, but population prevalence data indicate that it is a significant public health issue.

The Japanese Cabinet Office estimates the presence of more than 1.1 million people with hikikomori in Japan, and there is now increasing recognition of the hikikomori phenotype in a variety of other countries and cultures<sup>4,5</sup>. With this increased international recognition, there has been debate about the relationship of hikikomori to autism spectrum disorders, mood disorders, social anxiety and agoraphobia<sup>4</sup>. The core diagnostic feature, however, is that the affected person has physically isolated himself/herself at home for at least 6 months, cut off from meaningful social relationships, with significant functional impairment and distress<sup>4</sup>.

While many people will gladly emerge from enforced lockdown, those at risk of hikikomori will choose not to re-engage with their pre-COVID-19 life. Data from across cultures show that the typical onset of hikikomori is in late adolescence and early adulthood, often following an experience of shame or socio-culturally relevant defeat events (e.g., failing key academic examinations, not achieving a cherished job role). Hikikomori people avoid re-traumatization by choosing to opt out of the normative pathway set out for them by society<sup>3-5</sup>.

In the wake of the COVID-19 pandemic, many young people will confront dramatically altered goals and aspirations, and they will be highly vulnerable to impacts arising from precarious employment and economic vulnerability. Many Japanese Hikikomori cases are seen as a product of the economic downturns of the 1990s, that severely restricted employment opportunities. The widespread economic and social consequences of COVID-19 are likely to far exceed any shock to the prospects of young people seen for generations.

As we write, the UK has been in the state of lockdown for over three months. In non-pandemic circumstances, social withdrawal for three months would equate to the pre-hikikomori

stage, halfway to the minimum of six months of extreme social isolation proposed for a full diagnosis. This phase is sometimes recalled by those that go on to develop hikikomori as a period of solace, in which they were no longer exposed to the trauma that triggered the social withdrawal.

Not responding to the needs of this group will be hugely costly. Transnational studies of hikikomori show that without intervention the withdrawal period may last for years and in some cases the entire adult life. Japan now has had three decades of tracking the epidemiological trajectory of hikikomori, with many of those affected starting to outlive their parents. As lockdown measures are gradually lifted, we enter a critical period for identifying and preventing those who are vulnerable to following the classical hikikomori trajectory.

Because people with milder forms of hikikomori may leave home for non-social reasons two or three times a week<sup>4</sup>, the COVID-19 social distancing rules may allow them to “hide in plain sight”. This complicates the disentangling of behavioural adaptation to lockdown from attempts to become invisible from society as a way of minimizing further mental trauma. Aspiring to social death and avoiding physical death is a core feature of people with hikikomori – they want society to forget them, but they cannot forget society<sup>5</sup>. Many of them will continue to passively observe the world via online gaming and social media and, as long as parents act to ensure that their child’s basic living needs are met, there will be few natural triggers for help-seeking. External therapeutic attention typically takes years, and is most commonly triggered by a parent following a crisis. Addressing this type of largely invisible problem will require adapted help-seeking pathways.

This is now a global problem. Hikikomori has been described across diverse cultures and levels of per capita income<sup>3,4,6</sup>. As with so many problems of adaptive functioning, people at elevated risk will include those with pre-existing mental health problems, people affected by adverse childhood experiences<sup>7</sup>, plus those whose life-path has been severely derailed by the pandemic. There is a clear and time-sensitive need for a proactive and multidisciplinary effort to respond to the mental health consequences of the COVID-19 pandemic<sup>8</sup>. But, because of the invisible nature of hikikomori, standard pathways to care will be unlikely to operate. Instead, coordinated multi-agency collaboration will be needed to identify those at risk of continuing to “shelter in place” instead of re-engaging with pre-pandemic roles.

Vigilance for school non-attendance or a failure to re-join work or training may signal a need for outreach to check if there is problematic social withdrawal. The increased use of digital options for accessing health and social care services should be leveraged to provide new ways of finding and supporting new hikikomori people before they become too entrenched. Experience in Japan suggests that the creation of digital peer

networking may significantly improve engagement with sources of help and recovery.

Virtual reality and digitally-delivered psychological treatments may also be particularly suitable for this group, whose preferred medium for accessing the world is the Internet. Finally, public mental health campaigns via digital means may prove particularly effective for reaching out to potential hikikomori people and their families to capitalize on the known interest in online activities of this group. Investing in the detection and support of new people with hikikomori should be added to the growing list of mental health research and treatment priorities in the post-COVID-19 era.

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## The network structure of ICD-11 complex post-traumatic stress disorder across different traumatic life events

The ICD-11 describes complex post-traumatic stress disorder (CPTSD) as consisting of six symptom clusters: re-experiencing of the trauma in the present, avoidance of traumatic reminders, sense of current threat, affective dysregulation, negative self-concept, and disturbed relationships<sup>1</sup>.

The network approach estimates and quantifies symptom-specific associations, and symptoms that have many and/or strong associations are deemed highly central to a network. In theory, the most central symptoms should reflect the most significant aspects of a disorder and, potentially, the most important treatment targets. Considering that exposure to a traumatic life event is a defining feature of CPTSD, it is important to explore if CPTSD symptom expression varies depending upon the type of trauma.

We used network analysis to: a) examine the structural validity of CPTSD across six different index trauma experiences (unexpected death of a loved one, physical or sexual assault, life-threatening accident, life-threatening illness, natural disaster, childhood poly-traumatization), and b) explore differences in the overall importance (i.e., centrality) of specific symptom clusters across the six index trauma events.

Data were drawn from general population surveys in the US (N=1,839), the UK (N=1,051), Israel (N=1,003) and the Republic of Ireland (N=1,020). In every case, participants were recruited from existing online research panels that are representative of the general population of each country. In total, 4,913 adults participated across the four samples. Their mean age was 44.9±15.0 years (range 18-90 years), and 60.5% were female. Clinical data were also pooled from three cohorts of clients (N=588, mean age 39.6±12.2 years, 54% female) recruited from a national health service trauma centre in Scotland.

Traumatic exposure was measured using the Life Events Checklist for DSM-5<sup>2</sup> or the International Trauma Exposure Measure<sup>3</sup>. The Childhood Trauma Questionnaire<sup>4</sup> was also used in the clinical samples to measure childhood trauma exposure. CPTSD symptoms were assessed using the International Trauma

Questionnaire<sup>5</sup>.

Participants from the community samples were classified into six groups based on their index trauma: unexpected death of a loved one (28.4%, N=1,393), physical/sexual assault (19.3%, N=949), life-threatening accident (15.2%, N=745), life-threatening illness (8.3%, N=409), and natural disaster (6.2%, N=307). All participants from the clinical sample reported multiple traumatic life events in childhood and were thus classified in the group of childhood poly-traumatization.

Symptom networks were estimated separately in each trauma sub-sample with the R-package *Isingfit*, using the default hyperparameter value of 0.25. The resultant networks were visualized using the R package *qgraph*<sup>6</sup>. This package visualizes networks as nodes (points in space reflecting symptoms) and edges (lines connecting the nodes, indicating the presence, direction and strength of associations). The overall importance/influence of each symptom node was determined using the expected influence (EI) measure of centrality. EI is calculated by summing the edge weights of a given node, and thus provides an indication of a node's direct influence over all other nodes in the given network<sup>7</sup>. We tested for significant differences in EI across the trauma groups using non-parametric permutation tests<sup>8</sup>.

Networks, EI values and results from the permutation tests are available at <https://www.traumameasuresglobal.com/na2020>. The EI values were highly inconsistent across the different groups, suggesting that specific symptom clusters had a different relevance depending on the type of index trauma. This was supported by the permutation tests, with 31% of EI values differing significantly across the trauma groups ( $\alpha=0.05$ ).

For those who had experienced accidents or assaults, avoidance was a particularly influential symptom cluster. Sense of current threat and disturbances in relationships were influential nodes for those in the illness group. Avoidance and disturbances in relationships were high in EI for those who had experienced the unexpected death of a loved one. For those who had experienced a natural disaster, avoidance and negative self-concept